



Billing Code 4310-55-P

## **DEPARTMENT OF THE INTERIOR**

### **Fish and Wildlife Service**

#### **50 CFR Part 17**

[Docket No. FWS-R6-ES-2012-0052]

[4500030113]

### **Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List *Mimulus gemmiparus* (Rocky Mountain monkeyflower) as Endangered or Threatened and to Designate Critical Habitat**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notice of petition finding and initiation of status review.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce a 90-day finding on a petition to list *Mimulus gemmiparus* (Rocky Mountain monkeyflower; also known as budding monkeyflower, or Weber's monkeyflower) as an endangered or

threatened species throughout its entire range and to designate critical habitat under the Endangered Species Act of 1973, as amended (Act). For the purposes of this document, we will refer to *Mimulus gemmiparus* as Rocky Mountain monkeyflower. Based on our review, we find that the petition presents substantial scientific or commercial information indicating that listing Rocky Mountain monkeyflower may be warranted. Therefore, with the publication of this notice, we will be initiating a review of the status of the species to determine whether listing Rocky Mountain monkeyflower is warranted. To ensure that this status review is comprehensive, we are requesting scientific and commercial data and other information regarding this species. Based on the status review, we will issue a 12-month finding on the petition, which will address whether the petitioned action is warranted, as provided in section 4(b)(3)(B) of the Act. We will make a determination on critical habitat for this species if and when we initiate a listing action.

**DATES:** To allow us adequate time to conduct this review, we request that we receive information on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. The deadline for submitting an electronic comment using the Federal eRulemaking Portal (see **ADDRESSES** section, below) is 11:59 p.m. Eastern Time on this date. After [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER], you must submit information directly to the Division of Policy and Directives Management (see **ADDRESSES** section below). Please note that we might not be able to address or incorporate information that we receive after the above requested date.

**ADDRESSES:** You may submit information by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal:

<http://www.regulations.gov>. Search for Docket No. **FWS-R6-ES-2012-0052**, which is the docket number for this action. You may submit a comment by clicking on “Comment Now!”

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: **FWS-R6-ES-2012-0052**; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, MS 2042–PDM; Arlington, VA 22203.

We will not accept e-mail or faxes. We will post all information we receive on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see the **Request for Information** section below for more details).

**FOR FURTHER INFORMATION CONTACT:** Patty Gelatt, Western Colorado Supervisor, Ecological Services, 764 Horizon Drive, Bldg. B, Grand Junction, CO 81506-3946; telephone (970) 243-2778; fax (970) 245-6933. If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at (800) 877-8339.

**SUPPLEMENTARY INFORMATION:**

## **Request for Information**

When we make a finding that a petition presents substantial information indicating that listing a species may be warranted, we are required to promptly review the status of the species (status review). For the status review to be complete and based on the best available scientific and commercial information, we request information on Rocky Mountain monkeyflower from governmental agencies, the scientific community, industry, and any other interested parties. We seek information on:

(1) The species' biology, range, and population trends, including:

(a) Habitat requirements;

(b) Genetics and taxonomy;

(c) Historical and current range, including distribution patterns;

(d) Historical and current population levels, and current and projected trends; and

(e) Past and ongoing conservation measures and programs for the species, its habitat, or both.

(2) The factors that are the basis for making a listing determination for a species under section 4(a) of the Act (16 U.S.C. 1531 *et seq.*), which are:

(a) The present or threatened destruction, modification, or curtailment of its habitat or range;

(b) Overutilization for commercial, recreational, scientific, or educational purposes;

(c) Disease or predation;

(d) The inadequacy of existing regulatory mechanisms; or

- (e) Other natural or manmade factors affecting its continued existence.

If, after the status review, we determine that listing Rocky Mountain monkeyflower is warranted, we will propose critical habitat (see definition in section 3(5)(A) of the Act), in accordance with section 4 of the Act, to the maximum extent prudent and determinable at the time we propose to list the species. Therefore, we also request data and information on:

- (1) What may constitute “physical or biological features essential to the conservation of the species” within the geographical range currently occupied by the species;
- (2) Where these features are currently found;
- (3) Whether any of these features may require special management considerations or protection;
- (4) Specific areas outside the geographical area occupied by the species that are “essential for the conservation of the species”; and
- (5) What, if any, critical habitat you think we should propose for designation if the species is proposed for listing, and why such habitat meets the requirements of section 4 of the Act.

Please include sufficient information with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you include.

Submissions merely stating support for or opposition to the action under consideration without providing supporting information, although noted, will not be considered in making a determination. Section 4(b)(1)(A) of the Act directs that determinations as to whether any species is an endangered or threatened species must be made “solely on the basis of the best scientific and commercial data available.”

You may submit your information concerning this status review by one of the methods listed in the **ADDRESSES** section. If you submit information via <http://www.regulations.gov>, your entire submission—including any personal identifying information—will be posted on the website. If your submission is made via a hardcopy that includes personal identifying information, you may request at the top of your document that we withhold this personal identifying information from public review. However, we cannot guarantee that we will be able to do so. We will post all hardcopy submissions on <http://www.regulations.gov>.

Information and supporting documentation that we received and used in preparing this finding will be available for public inspection at <http://www.regulations.gov>, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Western Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

## **Background**

Section 4(b)(3)(A) of the Act requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. We are to base this finding on information provided in the petition, supporting information submitted with the petition, and information otherwise available in our files. To the maximum extent practicable, we are to make this finding within 90 days of our receipt of the petition and publish our notice of the finding promptly in the **Federal Register**.

Our standard for substantial scientific or commercial information within the Code of Federal Regulations (CFR) with regard to a 90-day petition finding is “that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted” (50 CFR 424.14(b)). If we find that substantial scientific or commercial information was presented, we are required to promptly commence a review of the status of the species, which is subsequently summarized in our 12-month finding.

#### *Petition History*

On October 4, 2011, we received a petition dated September 30, 2011, prepared by WildEarth Guardians (petitioner) requesting that Rocky Mountain monkeyflower be given immediate protection and listed as an endangered or threatened species under the Act and that we designate critical habitat for the species. The petition clearly identified itself as such and included the requisite identification information for the petitioners, as

required at 50 CFR 424.14(a).

In a December 20, 2011, letter to WildEarth Guardians, we responded that we reviewed the information presented in this and eight other petitions that we received in September and October of 2011 (Alt 2011, entire). We noted that these petitions will be considered submitted within Fiscal Year 2011 for purposes of accounting under our multidistrict litigation settlement and its petition cap provision, which limits the number of petitions that WildEarth Guardians may submit each fiscal year.

We also noted that emergency listing of a species is not a petitionable action under the Administrative Procedure Act or the Endangered Species Act (Act); therefore, we treat requesting emergency listing solely as a petition to list a species under the Act. We stated in the letter to the petitioners that, while we had not made a decision on whether the petition presents substantial information that the petitioned actions may be warranted, we had looked at the immediacy of possible threats to the species to determine if emergency listing may be necessary at this time. Our initial review of the petition indicated that an emergency situation does not exist for this species. However, if at any time conditions change and we determine emergency listing is necessary, an emergency rule may be developed. We stated that we are currently required to complete a significant number of listing and critical habitat actions by the end of Fiscal Year 2016 pursuant to court orders, judicially approved settlement agreements, and other statutory deadlines. We said we may conduct a review of this petition prior to that time should budget and workload permit. This finding addresses the petition.



### *Previous Federal Actions*

Rocky Mountain monkeyflower was included in the 1985 Review of Plant Taxa for Listing as Endangered or Threatened Species (50 FR 39526, September 27, 1985). In that document, we included the species as a Category 2 candidate, based on our evaluation at that time. Category 2 candidates were species for which the Service had information indicating that protection under the Act may be warranted but for which we lacked sufficient information on status and threats to determine if elevation to “Category-1 candidate” status was warranted. We published our decision to discontinue candidate categories and to restrict candidate status to those taxa for which we have sufficient information to support issuance of a proposed rule on December 5, 1996 (61 FR 64481). This decision resulted in the deletion of Rocky Mountain monkeyflower from the list of candidate taxa for listing.

In 2009, we published a 90-day finding on 165 species from a petition to list 206 species, including Rocky Mountain monkeyflower (74 FR 6122, February 5, 2009). We found that the petition did not present substantial scientific or commercial information indicating that listing Rocky Mountain monkeyflower may be warranted. The information we reviewed for the species described one or more threats for a general area, but did not link the threats to the species or the habitat occupied by the species. We were subsequently petitioned to list this species on October 4, 2011. This finding is in response to that petition.

## *Species Information*

### Species Description and Taxonomy

Ruth Ashton Nelson discovered Rocky Mountain monkeyflower in 1950 (Beatty *et al.* 2003, p. 13). The species was identified and described by William A. Weber (Weber 1972, pp. 423-425). Taxonomic classification of the genus *Mimulus* has been changed from the family Scrophulariaceae to the family Phrymaceae (Beardsley and Olmstead 2002, p. 1098; Olmstead 2002, pp. 16, 18, 21, 22). We consider Rocky Mountain monkeyflower to be a valid species and, therefore, a listable entity under the Act (ITIS 2012, p. 1).

Rocky Mountain monkeyflower is a small annual herb 1 to 10 centimeters (cm) (0.4 to 4 inches (in.)) tall, weak, and somewhat fleshy (Weber 1972, p. 423), with a hairless, usually unbranched, stem. Leaves are opposite, entire, oval in shape, and hairless, and will grow to 10 millimeters (mm) (0.4 in.) long and 7 mm (0.3 in.) wide. Leaf stems are 2 to 3 mm (about 0.11 in.) long, with a small pocket at the base that contains a dormant embryonic shoot called a bulbil or gemma, which reproduces vegetatively (Spackman *et al.* 1999a; Spackman *et al.* 1999b, p. 34; Moody *et al.*, 1999, p. 1521). Rocky Mountain monkeyflower plants do not usually have flowers, but they can produce flowers and seeds in laboratory conditions (Beardsley 1997, p. 3). The solitary yellow flowers are about 5 mm (0.20 in.) long, with spreading petals and an open

throat (Beatty *et al.* 2003, p. 14); they bloom in mid-July.

## Life History

The asexual gemmae of Rocky Mountain monkeyflower are dispersed when the parent plant dies, and are capable of overwintering in the soil and germinating the following spring. The flat, lens-shaped gemmae float down slope in seepage water and tend to collect in drifts in sites suitable for germination (Weber 1972, p. 3). Thus, the species behaves like an annual, but with asexually produced bulbils carrying out the function of seeds (Steingraeber and Beardsley 2005, p. 2). This particular method of reproduction and development is unique within the genus *Mimulus*, and probably unique within all flowering plants (Beardsley *et al.* 2004, p. 487; Moody *et al.* 1999, p. 1522).

## Habitat

Rocky Mountain monkeyflower is a montane to subalpine species that grows at elevations of 2,572 to 3,413 meters (m) (8,438 to 11,198 feet (ft)) (CNHP 2011b, p. 1). Plants grow primarily on substrates of granite with surface seepage water and on moist forest soils near seeps, waterfalls, and springs. Often they are protected by granite overhangs, on south- or west-facing aspects, and are associated with mosses and ferns (CNHP 2012, p. 2).

## Distribution and Abundance

Rocky Mountain monkeyflower is currently known from seven populations in five counties (Boulder, Clear Creek, Grand, Jefferson, and Larimer) along the Front Range of the Rocky Mountains in Colorado. As noted in the petition, one additional population in Rocky Mountain National Park (RMNP) is no longer considered extant. The species' estimated range is 2,519 square kilometers (972 square miles) (CNHP 2011a, p. 3). The total estimated occupied habitat is about 10.5 hectares (ha) (26 acres (ac)) (CNHP 2011a, p. 3). Actual occupied area as measured on the ground during surveys within the documented populations is 168 square meters (sq m) (1,808 sq ft) (Steingraeber and Beardsley 2005, p. 22). Estimated total abundance is about 126,000 plants (Steingraeber and Beardsley 2005, pp. 9, 22).

TABLE 1. Summary of currently known populations (Steingraeber and Beardsley 2005, pp. 9, 22)

Site Name	Estimated Number of Plants	Area Occupied in square meters (square feet)	Management
St. Vrain	14,660	68 (732)	USFS
Hankins Gulch	102,000	13(140)	USFS
Guanella Pass	600	10 (108)	USFS
Horseshoe Park	3,200	38 (409)	RMNP
North Inlet	4,400	25 (269)	RMNP
East Inlet	800	13 (140)	RMNP
Staunton State Park	73	1 (11)	CDNR
TOTAL	125,733	168 (1,808)	

CDNR = Colorado Department of Natural Resources

#### Conservation Status

NatureServe ranks Rocky Mountain monkeyflower as a “G1” species (critically

imperiled globally and at very high risk of extinction) (NatureServe 2010, p. 1). The Colorado Natural Heritage Program (CNHP) ranks the species as “S1” (critically endangered throughout its range in Colorado) (CNHP 2011, p. 1). The USFS, Rocky Mountain Region (Region 2) has designated Rocky Mountain monkeyflower as a sensitive species (Beatty *et al.* 2003, p. 3). USFS objectives for designated sensitive species are to develop and implement management practices to ensure that species do not become endangered or threatened species because of USFS actions (Wrigley *et al.* 2007, p. 3).

### **Evaluation of Information for this Finding**

Section 4 of the Act (16 U.S.C. 1533) and its implementing regulations at 50 CFR part 424 set forth the procedures for adding a species to, or removing a species from, the Federal Lists of Endangered and Threatened Wildlife and Plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act:

- (A) The present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) Overutilization for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation;
- (D) The inadequacy of existing regulatory mechanisms; or
- (E) Other natural or manmade factors affecting its continued existence.

In considering what factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the species responds to the factor in a way that causes actual impacts to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant a threat it is. If the threat is significant, it may drive or contribute to the risk of extinction of the species such that the species may meet the definition of endangered or threatened under the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely impacted could suffice. The mere identification of factors that could impact the species negatively may not be sufficient to compel a substantial finding. The information must contain evidence sufficient to suggest that these factors may be operative threats that act on the species to the point that the species may meet the definition of an endangered or threatened species under the Act.

In making this 90-day finding, we evaluated whether information regarding threats to Rocky Mountain monkeyflower, as presented in the petition and other information available in our files, is substantial, thereby indicating that the petitioned action may be warranted. Our evaluation of this information is presented below.

*A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range*

## Recreation, Trails, and Roads

### *Information Provided in the Petition*

The petitioner states that recreational activities are the primary threats to the habitat for Rocky Mountain monkeyflower (CNHP 2011a, p. 3). Nearly all known locations are near trails and roads subject to impacts from hikers, people fishing, horses, dogs, off-road vehicles (except in wilderness locations), or road and trail maintenance activity (Beatty *et al.* 2003, p. 3). Habitat for the plants also provides good camping and shelter areas, given their proximity to trails, water, and protective overhangs. Resulting impacts include crushed plants, disturbed soil, and diversion of water away from the plants, as well as introduction of weedy species that compete with Rocky Mountain monkeyflower (Beatty *et al.* 2003, p. 3). A hiking trail bisects one population in RMNP (Beatty *et al.* 2003, p. 28). The location in Hankins Gulch is about 2 m (6 ft) from a trail, where observers saw clusters of Rocky Mountain monkeyflower trampled by human, dog, and horse footprints (Beardsley 1997, p. 221). One of the other locations in RMNP is used as a latrine and rest stop by hikers (Beatty *et al.* 2003, p. 28). The waterfall area where Rocky Mountain monkeyflower occurs in Staunton State Park will likely be a popular destination for visitors when the park opens to the public (Beatty *et al.* 2003, p. 28). The park opening is expected before the end of 2012. Road improvement and construction activities at Guanella Pass could change the amount of water available to Rocky Mountain monkeyflower at that location (Beatty *et al.* 2003, p. 12; CFLHD 2009,

entire).

*Evaluation of Information Provided in the Petition and Available in Service Files*

Information cited in the petition and available in our files is consistent with the petitioners' assertions that recreational activities have caused documented impacts to the habitat for Rocky Mountain monkeyflower as well as to the plants (CNHP 2011a, p. 3). At least 54 percent of the known occupied habitat for the species, which supports about 88 percent of the documented plants, is highly vulnerable to trampling of plants and the moist soils they grow on (Steingraeber and Beardsley 2005, pp. 9, 22). The trail through the large Hankins Gulch population, where observers saw clusters of Rocky Mountain monkeyflower trampled by human, dog, and horse footprints (Beardsley 1997, p. 221), was rerouted to the other side of the creek in 2011, to protect the plants (Olson in Anderson *et al.* 2011, p. 19). Information on the current status of this population is not in our files. Plant surveyors have found new locations that were inaccessible by trail, but they have been unsuccessful at detecting the plant at similar remote sites. Four areas of additional suitable habitat have been identified but not surveyed (Steingraeber and Beardsley 2005, p. 8). All four are near known locations and within the known range of the species. We will use all information available at the time we conduct our status review to determine the total percent of suitable habitat that may be subject to impacts by recreational use.



Information in our files shows that inadvertent trampling due to off-trail hiking, rock climbing, and scrambling is likely to impact this species in Staunton State Park, because the species is found in areas that are attractive to visitors (Beatty *et al.* 2003, p. 29). A 2007 survey report noted that “a park visitor could easily stop for a break near the waterfall and unknowingly eliminate nearly the entire population by settling down in the wrong area” (Colorado State Parks 2010, p. 5). However, because the park is not yet open to public use, we do not have substantial scientific or commercial information in our files, nor was any provided by the petitioners, indicating that trampling by recreational users is a threat to the Staunton State Park population of Rocky Mountain monkeyflower. We will analyze this potential threat in more detail in our status review for the species.

Although we do not have substantial information that trampling may be a threat to the Rocky Mountain monkeyflower in Staunton State park, this population comprises only a small portion of the species’ total known numbers. The majority (88 percent) of documented plants and 54 percent of the known occupied habitat are in areas near roads and trails commonly used for hiking and other recreational and maintenance activities, where the plants are considered highly vulnerable to trampling. Additionally, Rocky Mountain monkeyflower is a small, fragile, and inconspicuous plant that is highly susceptible to inadvertent trampling and is unlikely to withstand such impacts. Therefore, we find there is substantial information overall to indicate that trampling by

recreational users may pose a threat to the species.

## Human Population Growth

### *Information Provided in the Petition*

The petitioners point out that all Rocky Mountain monkeyflower locations are close to large human populations that have grown significantly over the last several decades along the Colorado Front Range Urban Corridor, and are projected to increase another 26.5 percent by 2025 (State Demography Office 2011, entire). This increased population may have significant impacts on Rocky Mountain monkeyflower locations due to increased recreational use of public lands.

### *Evaluation of Information Provided in the Petition and Available in Service Files*

References cited by the petitioners support their assertion that recent and projected population growth within day-trip distance of Rocky Mountain monkeyflower habitat is likely to occur. Although it is likely that an increasing human population will result in an increase in visitor use of the surrounding areas, and that heavier use of the trails where the species is located would increase the likelihood of plant damage and habitat disturbance, we have no substantial information to show that this may pose a threat to the species at this time. We will analyze this potential threat in more detail in our status review for the species.

## Livestock and Herbivore Grazing

### *Information Provided in the Petition*

The petitioners state that Rocky Mountain monkeyflower plants may be trampled and their habitat degraded by excessively large herds of elk (*Cervus elaphus*) in RMNP that are overutilizing willow (*Salix* spp.) thickets and aspen (*Populus tremuloides*) stands that provide habitat for Rocky Mountain monkeyflower (RMNP 2009, entire).

### *Evaluation of Information Provided in the Petition and Available in Service Files*

References cited by the petitioners support their assertion that large elk herds are degrading willow and aspen stands near Rocky Mountain monkeyflower habitat. However, available information does not show substantial evidence of direct impacts by elk on the seeps and stream habitat where Rocky Mountain monkeyflower occurs (Beatty *et al.* 2003, pp. 26-27). Therefore, we find that there is not substantial information to indicate that livestock and herbivore grazing may pose a threat to the species. We will evaluate this factor more thoroughly during our status review.

## Changes in Natural Regimes

### *Information Provided in the Petition*

The petitioners list wildfires, drought, rockfalls, flash floods, global warming, erosion, blow-downs, and timber harvests as impacts that can alter the hydrology, topography, soils, or shading of Rocky Mountain monkeyflower habitat (Beatty *et al.* 2003, p. 28). They cite a report of areas intensely burned by wildfire that were observed within 9 to 12 m (30 to 40 ft) of the Rocky Mountain monkeyflower population at Hankins Gulch in 2003 (Steingraeber and Beardsley 2005, p. 9). While the riparian location of Rocky Mountain monkeyflower protected it from direct fire impacts, ecology of the site was reportedly altered in its hydrology and vegetation, as were possibly soils, water runoff, erosion, and deposition of biotic mass (Beatty *et al.* 2003, p. 28).

According to the petitioner, loss of Rocky Mountain monkeyflower habitat has been documented in RMNP (2007b, p. 3). There has been a 69 percent reduction in surface water, as well as lowered water tables, attributed to the loss of beaver (*Castor canadensis*), which has led to a significant decline in montane riparian willows (RMNP 2007b, p. 3). Like willows, the riparian habitat occupied by Rocky Mountain monkeyflower is more dependent on groundwater from streams and snowmelt than from rainfall. The petitioners say it is reasonable to conclude that the same factors responsible for declining willow populations may impact Rocky Mountain monkeyflower.

#### *Evaluation of Information Provided in the Petition and Available in Service Files*

Information cited in the petition and available in our files is consistent with the

petitioners' description of impacts to Rocky Mountain monkeyflower habitat due to natural events. An intense wildfire and subsequent drying of soil and erosion by water runoff occurred at the largest known population of Rocky Mountain monkeyflower (Hankins Gulch) in 2002 (Steingraeber and Beardsley 2005, p. 9). The petitioner's descriptions of lowered water tables and reduced surface water in RMNP are based on reports from the park (RMNP 2007b, p. 3). The conclusion that Rocky Mountain monkeyflower populations will decline from lack of groundwater in the same way that willows have is reasonable. However, we have no information in our files to show that reduced groundwater for willow and aspen habitat due to lack of beaver ponds is affecting the seeps and drainages on shaded slopes that support Rocky Mountain monkeyflower habitat. Therefore, we find that there is not substantial information to indicate that changes in natural regimes may pose a threat to the species. We will evaluate this factor more thoroughly during our status review.

## Climate Change

### *Information Provided in the Petition*

The petitioner states that the western United States will likely suffer a decrease in water resources due to climate change, which will affect montane and subalpine ecosystems in RMNP and across Colorado. In support of this assertion, they cite conclusions from the Intergovernmental Panel on Climate Change (IPCC) (2007, p. 52) and RMNP (2007a, p. 6). The IPCC projected that warming in western mountains will

cause decreased snowpack and reduced summer flows (IPCC 2007, p. 52). RMNP postulates that the subalpine ecosystem will change due to dramatic disturbances, such as fire and insects, and from more gradual processes, such as warming temperatures (RMNP 2007a, p. 13). Regional changes in precipitation play a major role in large-scale fires in subalpine forests, which take place during extreme regional drought conditions. Increased numbers or intensities of fires could have a damaging impact on Rocky Mountain monkeyflower, easily destroying entire populations. Tree community composition will likely shift within the subalpine zone. For instance, north-facing hillsides may no longer be moist enough to support *Pseudotsuga menziesii* (Douglas fir) regeneration (RMNP 2007a, p. 13), or Rocky Mountain monkeyflower. “Mountain ecosystems such as those found in RMNP could shift upslope, reducing habitat for many subalpine species. Changes in rainfall and snowfall could alter streamflows and affect wetlands and wildlife” (Environmental Protection Agency 1997, p. 4). The petitioners assert that, as a montane and subalpine plant that depends on seeps and streams for survival, reproduction, and dispersal, Rocky Mountain monkeyflower will likely be adversely affected by reductions in stream flows and decreases in habitat acreage.

#### *Evaluation of Information Provided in the Petition and Available in Service Files*

Our analyses under the Act include consideration of ongoing and projected changes in climate. The terms “climate” and “climate change” are defined by the IPCC. “Climate” refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or

longer periods also may be used (IPCC 2007, p. 78). The term “climate change” thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007, p. 78). Various types of changes in climate can have direct or indirect effects on species. These effects may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007, pp. 8-14, 18-19). In our analyses, we use our expert judgment to weigh relevant information, including uncertainty, in our consideration of various aspects of climate change.

Sources cited by the petitioners and in our files support their assertion that climate change is occurring and likely to continue to occur within Rocky Mountain monkeyflower habitat. However, the petition did not present information on the species’ likely response to these changes. The response of species to climate change can be extremely complex, and we have no information in our files on the actual or likely response of Rocky Mountain monkeyflower. We think it possible that, as a montane and subalpine plant that disperses generally by gemmae floating downstream, Rocky Mountain monkeyflower will likely be adversely affected by decreases in range and upward shifts in its suitable habitat. Because Rocky Mountain monkeyflower depends on a constant source of moisture for survival, reproduction, and dispersal, reduction in stream flows may affect its survival. Because the climate is expected to become warmer and drier, habitat for Rocky Mountain monkeyflower may diminish, and fire danger will

likely increase. High fire risk is more than a theoretical threat for this species, because two major fires have occurred within the past 4 years in and near two of the populations. Overall, the information regarding the species' response to climate change appears speculative in nature, and therefore we find that there is not substantial information to indicate that the effects of climate change may pose a threat to Rocky Mountain monkeyflower. However, we will analyze this potential threat in more detail during our status review of the species.

#### Summary of Factor A

Information provided in the petition, as well as available information in our files, presents substantial scientific or commercial information indicating that trampling by recreational users may pose a threat to the Rocky Mountain monkeyflower. Habitat alteration and destruction of plants due to trampling may pose a threat to at least 54 percent of the known occupied habitat for the species, supporting about 88 percent of the documented plants, which are located near roads or trails used for recreational and maintenance activities. The biology of Rocky Mountain monkeyflower as a small, fragile, and inconspicuous plant makes it highly susceptible to inadvertent trampling and means that the plant is unlikely to withstand such impacts. Therefore, the petition and information in our files presents substantial scientific or commercial information indicating that the present or threatened destruction, modification, or curtailment of its habitat or range may be a threat to Rocky Mountain monkeyflower.

#### *B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes*



Neither the petition nor information within our files presents substantial scientific or commercial information indicating that overutilization for commercial, recreational, scientific, or educational purposes may present a threat to Rocky Mountain monkeyflower.

#### *C. Disease or Predation*

Neither the petition nor information within our files presents substantial scientific or commercial information indicating that disease or predation may present a threat to Rocky Mountain monkeyflower.

#### *D. The Inadequacy of Existing Regulatory Mechanisms*

##### *Information Provided in the Petition*

The petitioners state that current regulatory mechanisms are inadequate to protect the documented populations of Rocky Mountain monkeyflower. Habitat for the known populations is managed by RMNP, USFS, and CDNR. The petitioners claim that the efforts by these agencies to balance conflicting interests with conservation and survival of sensitive species threatens Rocky Mountain monkeyflower. Populations in the RMNP are protected under National Park Service (NPS) guidelines in general, which prohibit the collection of any native plants without a permit, but RMNP also provides recreational

opportunities that negatively affect Rocky Mountain monkeyflower (Steingraeber and Beardsley 2005, p. 10). A hiking trail bisects one population in the park, and another location is used as a latrine and rest stop by hikers (Beatty *et al.* 2003, p. 28).

The petitioners point out that Rocky Mountain monkeyflower is designated as a USFS Region 2 sensitive species. As such, the species may obtain some protection under various conservation strategies designed to protect plants and animals within Federal lands. USFS policies require a biological evaluation to assess project impacts to sensitive species and prohibit collection of sensitive plants without a permit. On the other hand, the USFS has a statutory, multiple-use mandate governing its land management activities. Some authorized activities on USFS lands, such as timber harvesting, cattle grazing, and recreational uses, may affect Rocky Mountain monkeyflower. The petitioners assert that balancing these other interests with the species' survival threatens Rocky Mountain monkeyflower. The petitioners assert that populations in wilderness areas within the forest are still threatened by recreational activities. As an example, they cite information concerning the population at Hankins Gulch (in Lost Creek Wilderness Area) about 2 m (6 ft) from a trail, where observers saw clusters of Rocky Mountain monkeyflower trampled by human, dog, and horse footprints (Beardsley 1997, p. 221). The petitioners say that this trail was expected to be rerouted in 2011 to avoid damage to the plant (USFS 2011, p. 1), and also that Staunton State Park managers were expected to consider Rocky Mountain monkeyflower in their land use plans (Beatty 2003, p. 12), but they do not mention whether these actions have been implemented.

*Evaluation of Information Provided in the Petition and Available in Service Files*

Information cited in the petition and available in our files is not sufficient to support the claim that existing regulations for management of designated sensitive plant species on RMNP- and USFS-managed lands may be inadequate to protect Rocky Mountain monkeyflower. Adequacy of the management plan for Staunton State Park cannot be considered because it consists of “non-regulatory protective designations that are intended to promote the conservation of sensitive resources through voluntary measures and proactive partnerships” (Colorado State Parks 2010, Appendix A. p. 2). Voluntary measures in the Staunton State Park management plan have yet to be implemented, and the new park is not yet open to the public.

The NPS Organic Act of 1916 (16 U.S.C. 1 *et seq.*), as amended, states that the NPS “shall promote and regulate the use of the Federal areas known as national parks, ... to conserve the scenery and the national and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” To meet these obligations, “the National Park Service will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible. In addition, the [Park] Service will inventory other native species that

are of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) and will manage them to maintain their natural distribution and abundance” (San Miguel 2011, p. 5). We do not have information readily available in our files to indicate that RMNP has a management plan specific to Rocky Mountain monkeyflower, or whether any protective measures have been taken to restrict hikers from trampling plants and habitat along the trails, or digging latrines in the soft soil where the plants grow. Steingraeber and Beardsley (2005, p. 10) reported that RMNP had not rerouted trails or monitored impacts to Rocky Mountain monkeyflower populations. We have no recent information in our files to show whether the Organic Act regulations are adequate to protect Rocky Mountain monkeyflower from the threat of trampling by hikers in RMNP.

The National Forest Management Act (16 U.S.C. 1600 *et seq.*) directs the USFS, as part of the land use planning process, to manage for protection of scientific values and protect wildlife habitat. The USFS Sensitive Species Management directive states that sensitive species of native plants and animals must receive special management emphasis to ensure their viability and to preclude trends toward endangerment that would result in the need for Federal listing (USFS 2002, p. 1). On USFS land, the trail at Hankins Gulch was rerouted in 2011 to avoid the plant population (Anderson *et al.* 2011, p. 19). Although we do not yet have monitoring results to show whether implementation of the regulations has reduced impacts to the largest population, we estimate that this is a positive step and should ameliorate the impacts to this population from recreational use on USFS lands.

CDNR – Colorado State Parks has completed the Staunton State Park Master Plan, which includes recommendations for protecting two rare and unique plant species: *Telesonix jamesii* (James’ telesonix) and Rocky Mountain monkeyflower. The greatest threat to these species in the park is from inadvertent trampling due to off-trail hiking and rock climbing and scrambling, as both species grow in areas that are attractive to visitors. Surveys for these two species were conducted in 2007. The plan contains the following recommendations to minimize human activity in habitat areas that are known to support these species: protect known Rocky Mountain monkeyflower locations as well as high-priority introduction sites; carefully plan trails and climbing access in known or potential habitat areas to minimize the potential for trampling or other impacts; survey climbing areas before they are open to the public; and provide interpretive opportunities at the Visitor’s Center, including experimental introduction efforts. These recommendations are nonregulatory and, as such, are intended to promote the conservation of sensitive resources through voluntary measures and proactive partnerships (Colorado State Parks 2010, Appendix A. pp. 4-5). Therefore, we are not considering the adequacy of the plan as a regulatory mechanism.

Projects conducted within the species’ range may be subject to the National Environmental Policy Act of 1970 (NEPA; 42 U.S.C. 4321 *et seq.*). All Federal agencies

are required to adhere to NEPA for projects they fund, authorize, or carry out. The Council on Environmental Quality's regulations for implementing NEPA (40 CFR parts 1500-1518) state that agencies shall include a discussion on the environmental impacts of the various project alternatives, any adverse environmental effects which cannot be avoided, and any irreversible or irretrievable commitments of resources involved (40 CFR part 1502). NEPA is a disclosure law that does not require subsequent minimization or mitigation measures by the Federal agency involved.

#### Summary of Factor D

Based on the information provided in the petition, as well as other information available in our files, we find that there is no substantial scientific or commercial information to indicate that the inadequacy of existing regulatory mechanisms may be a threat to Rocky Mountain monkeyflower. RMNP has nearly 7 percent of the entire known population of the species on 45 percent of the occupied habitat, and impacts to plants and habitat have been observed, but aside from the 2005 survey reports, we have no available information in our files or from the petitioners to indicate whether RMNP is implementing their directives to protect the species. The USFS has about 93 percent of the plants on 54 percent of the occupied habitat. About 81 percent of these plants are on the site that has been heavily trampled by hikers and exposed to drying after a large wildfire. Use of a newly built trail is expected to avoid further hiking impacts, although monitoring results are not yet available.

Given the level of information we have at this 90-day finding stage, it is unclear whether these Federal laws and regulations are adequate as they pertain to addressing the threats to the habitat of Rocky Mountain monkeyflower. We lack information regarding the implementation of existing regulatory mechanisms, and there is uncertainty about the efficacy of new protective measures and plans. We will contact RMNP and other agencies during the status review process to gather information to determine how and to what extent the existing regulations provide protection.

*E. Other Natural or Manmade Factors Affecting Its Continued Existence*

Biological Vulnerability and Small Population Size

*Information Provided in the Petition*

The petitioners assert that Rocky Mountain monkeyflower is especially vulnerable to extinction due to its unique asexual reproductive strategy, which does not produce seeds or a seed bank to maintain populations during dry years. Plants produce a small propagation tool (the gemma) inside the stalk of each leaf, which separates at the end of each season and seems to die, but then regerminates from the ground in the spring. Because of the limited reproductive ability of Rocky Mountain monkeyflower, the petitioners assert that loss of any individuals could undermine the survival of the species.

*Evaluation of Information Provided in the Petition and Available in Service Files*

The Service does not consider rarity in and of itself to be a threat. Some species, such as Rocky Mountain monkeyflower, have existed in low numbers throughout their history. However, we recognize that limited reproduction, small population size, and restricted range can increase the species' vulnerability to extinction in the presence of threats or other stressors. Another vulnerability is the stature of the plants. Being small, fragile annuals that seldom produce flowers to advertise their presence, Rocky Mountain monkeyflower plants are easily overlooked and crushed underfoot and are, therefore, vulnerable to trampling, which is the primary threat to the species. The crushed plants cannot produce gemmae for reproduction, which reduces the size of the population the following year. Due to their fragile and inconspicuous nature, uniquely limited reproduction, small population size, and limited range, all populations of Rocky Mountain monkeyflower may be vulnerable to local extirpation from seemingly insignificant disturbances.

#### Cumulative Threats

#### *Information Provided in the Petition*

The petitioners assert that any of the above-mentioned threats working in tandem could lead to the extinction of Rocky Mountain monkeyflower. For example, they assert that habitat loss and degradation due to impacts from human recreation is exacerbated by the threats of increased temperatures and more extreme weather caused by climate



change, which may impact the plant's reproductive success. They state that Rocky Mountain monkeyflower is already at risk due to its small population size and, thus, could easily be at risk from cumulative impacts of other threats.

*Evaluation of Information Provided in the Petition and Available in Service Files*

Information cited in the petition and available in our files is consistent with the petitioners' assertions that the vulnerability of small populations with limited range may be increased when threats are present. Warming, drying weather trends due to changing climate in the Rocky Mountains decreases the water available to support the moist habitat conditions essential for the Rocky Mountain monkeyflower's survival. The same warmer, drier weather increases the frequency of wildfire, which, in one such wildfire incident, has increased the exposure of the largest plant population to more drying. Drier conditions reduce the numbers and growth of these annual plants. Trampling by hikers further reduces the numbers of individuals available for continued reproduction.

Summary for Factor E

We find that the information provided in the petition, as well as other information available in our files, presents substantial scientific or commercial information indicating that other natural or manmade factors affecting the continued existence of Rocky Mountain monkeyflower may be a threat. Its unique asexual reproduction, annual life history, small population size, specialized habitat needs, reliance on surface water and

moist soils, and discontinuous distribution all make the species vulnerable to increasingly drier habitat conditions, wildfires, and trampling by hikers.

## **Finding**

On the basis of our determination under section 4(b)(3)(A) of the Act, we find that the petition presents substantial scientific or commercial information indicating that listing Rocky Mountain monkeyflower throughout its entire range may be warranted. Given the rarity of this species, its specific life-history traits that increase vulnerability to extinction in the presence of other stressors, and potential impacts to the existing populations from trampling, the petition and our files contain substantial information that Rocky Mountain monkeyflower may be threatened by at least two of the five listing factors: present and threatened destruction, modification, and curtailment of its habitat and range, and other natural or manmade factors affecting its continued existence.

This finding is based on information provided under Factors A and E. We determine that the information provided under Factors B and C is not substantial. The information on Factor D is unclear; we will further analyze this issue in our status review.

Because we have found that the petition presents substantial information indicating that listing Rocky Mountain monkeyflower may be warranted, we will initiate a status review to determine whether listing Rocky Mountain monkeyflower under the Act is warranted.

The “substantial information” standard for a 90-day finding differs from the Act’s “best scientific and commercial data” standard that applies to a status review to determine whether a petitioned action is warranted. A 90-day finding does not constitute a status review under the Act. In a 12-month finding, we will determine whether a petitioned action is warranted after we have completed a thorough status review of the species, which is conducted following a substantial 90-day finding. Because the Act’s standards for 90-day and 12-month findings are different, as described above, a substantial 90-day finding does not mean that the 12-month finding will result in a warranted finding.

### **References Cited**

A complete list of references cited is available on the Internet at *<http://www.regulations.gov>* and upon request from the Western Colorado Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

### **Authors**

The primary authors of this notice are the staff members of the Western Colorado Ecological Services Field Office.

**Authority**

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: August 17, 2012

Signed: Benjamin N. Tuggle

Acting Director, U.S. Fish and Wildlife Service

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